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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/815,030	03/30/2004	Alan E. Waltho	884.C49US1	7791
21186 7590 05/12/2008 SCHWEGMAN, LUNDBERG & WOESSNER, P.A. P.O. BOX 2938 MINNEAPOLIS, MN 55402				
EXAMINER BAYARD, EMMANUEL				
ART UNIT 2611		PAPER NUMBER		
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/815,030

**Applicant(s)**

WALTHO ET AL.

**Examiner**

Emmanuel Bayard

**Art Unit**

2611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 05 February 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-3 and 5-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 5-29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-8508)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### DETAILED ACTION

This is in response to amendment filed on 2/5/08 in which claims 1-3 and 5-29 are pending. The applicant's amendments have been fully considered but they are moot based on the new ground of rejection.

#### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-3, 5-10 and 12-27 are rejected under 35 U.S.C. 102(e) as being anticipated by Johnson et al U.S. Pub No 2006/0073800 A1.

As per claims 1 and 26, Johnson et al teaches an apparatus, including: a digital processor to shift a digital baseband signal upward along a frequency spectrum by a selected amount to provide a first elevated frequency digital baseband signal and a second elevated frequency digital baseband signal derived from a phase- shifted version of the digital baseband signal (see fig.5 element 206 and page 3 [0030] and page 4 [0041] and page 5 [0046]), and a digital mixer to receive the digital baseband signal and to provide the first elevated frequency digital baseband signal (see fig.5 element 220 or 230 and page 4 [0041]).

As per claim 2, Johnson et al teaches, wherein the selected amount is greater than about a bandwidth of the digital baseband signal (see page 4 [0035-0037]).

As per claim 3, Johnson et al teaches, further including: a phase shifting module to receive the digital baseband signal and to provide the phase-shifted version of the digital baseband signal (see fig.5 element LO1-90% and page 5 [0046]).

As per claims 5 and 27, Johnson et al teaches, further including: a digital to analog converter to receive the first elevated frequency digital baseband signal and to provide an analog signal (see fig.5 element 224 or 234).

As per claim 6, Johnson et al teaches, further including: an image reject mixer to receive the analog signal and a carrier signal (see fig.5 element 240 and page 6[0059] and page 7 [0064]).

As per claim 7, Johnson et al teaches, further including: a filter to pass a non-rejected sideband signal provided by the image reject mixer (see fig.5 element 262).

As per claim 8, Johnson et al inherently teaches, wherein the digital baseband signal is formatted according to an Institute of Electrical and Electronics Engineers 802.11 standard.

As per claim 9, Johnson et al teaches an apparatus, including: a first digital mixer to receive a digital baseband signal and to provide a first elevated frequency digital baseband signal (see fig.5 element 220); a phase shifting module to receive the digital baseband signal and to provide a phase- shifted version of the digital baseband signal (see fig.5 element LO1-90 and page 5 [0046]); a second digital mixer to receive the phase-shifted version of the digital baseband signal and to provide a second

elevated frequency digital baseband signal (see fig.5 element 230); and a digital to analog converter to receive a selected one of the first elevated frequency digital baseband signal and the second elevated frequency digital baseband signal (see fig.5 element 224 or 234) and to provide an analog signal to an image reject mixer (see fig.5 element 240 and page 6 [0059]).

As per claim 10, Johnson et al teaches, further including: a surface acoustic wave filter to pass a non-rejected sideband signal provided by the image reject mixer (see fig.5 element 262).

As per claim 12, Johnson et al teaches system, including: a digital processor to shift a digital baseband signal upward along a frequency spectrum by a selected amount to provide a first elevated frequency digital baseband signal and a second elevated frequency digital baseband signal derived from a phase- shifted version of the digital baseband signal (see fig.5 element 206 and page 3 [0030] and page 4 [0041] and page 5 [0046]); and an omnidirectional antenna to transmit a communications signal derived from the first elevated frequency digital baseband signal is inherently taught by Johnson et al teaches (see fig.5 and page 2 [0029]).

As per claim 13, Johnson et al inherently teaches, further including: a display to display information associated with the digital baseband signal.

As per claim 14, Johnson et al teaches, further including: a digital mixer to receive a selected one of the digital baseband signal and the phase- shifted version of the digital baseband signal and to provide the first elevated frequency digital baseband

signal and the second elevated frequency digital baseband signal, respectively (see fig.5 element 220 or 230 and page 4 [0041]).

As per claim 15, Johnson et al teaches, further including: a filter to pass an analog signal provided by a digital to analog converter to receive a selected one of the first elevated frequency digital baseband signal and the second elevated frequency digital baseband signal (see fig.5 element 226 or 236).

As per claim 16, Johnson et al inherently teaches, wherein the omnidirectional antenna is included in a multiple-input, multiple-output communications system(see fig.5 and page 2 [0029]).

As per claim 17, Johnson et al inherently teaches wherein the communications signal is formatted according to an Advanced Television Systems Committee (ATSC) standard (see page 1 [0004]).

As per claim 18, Johnson et al teaches method, including: shifting a digital baseband signal upward along a frequency spectrum by a selected amount to provide a first elevated frequency digital baseband signal (see fig.5 element LO1 and 220) and a second elevated frequency digital baseband signal derived from a phase-shifted version of the digital baseband signal (see fig.5 element LO1-90° and page 5 [0046]).

As per claim 19, Johnson et al teaches method further including: mixing the digital baseband signal with a digital carrier frequency to provide the first elevated frequency digital baseband signal (see fig.5 element 220).

As per claim 20, Johnson et al inherently teaches, further including: selecting a mixing technique from a Weaver technique and a Norgaard technique.

As per claim 21, Johnson et al teaches, further including: mixing the phase-shifted version of the digital baseband signal with a digital carrier frequency to provide the second elevated frequency digital baseband signal(see fig.5 element 230 and LO1-90% and page 5 [0046]).

As per claim 22, Johnson et al teaches, further including: converting a selected one of the first elevated frequency digital baseband signal and the second elevated frequency digital baseband to a first analog signal and a second analog signal, respectively (see fig.5 element 224 or 234).

As per claim 23, Johnson et al teaches, further including: mixing the first analog signal and the second analog signal with a carrier frequency to provide an output signal (see fig.5 element 220 and 230) ; and rejecting a resulting lower sideband signal from the output signal (see fig.5 element 226 or 236).

As per claim 24, Johnson et al inherently teaches further including: processing the output signal to provide a vestigial sideband television signal.

As per claim 25, Johnson et al inherently teaches further including: formatting the digital baseband signal according to an Institute of Electrical and Electronics Engineers 802.11 standard.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 11 and 28-29 rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson et al U.S. Pub No 2006/0073800 A1 in view of Pikkarainen et al U.S. patent No 5,701,106.
5. As per claim 11, Johnson et al teaches all the features of the claimed invention except, further including: an analog mixer to combine a synthesized carrier signal and a filtered sideband signal derived from a non-rejected sideband signal provided by the image reject mixer.
6. Pikkarainen et al teaches an analog mixer (see fig.11 element 108) to combine a synthesized carrier signal (see fig.11 element 107) and a filtered sideband signal (see fig.11 output of element 109) derived from a non-rejected sideband signal provided by the image reject mixer.
7. It would have been obvious to one of ordinary skill in the art to implement the teaching of have been obvious to one of ordinary skill in the art to implement the teaching of Pikkarainen into Johnson as so that the modulation could be performed directly to the first IF frequency of the transmitter using and RF modulator as taught by Pikkarainen (see col.8, lines 60-63).

As per claim 28, Johnson et al teaches all the features of the claimed invention except, wherein the information, when accessed, results in the machine performing: combining the first analog sideband signal and the second analog sideband signal to provide a non-rejected sideband signal modulated by an analog carrier frequency.



Pikkarainen et al teaches combining the first analog sideband signal and the second analog sideband signal to provide a non-rejected sideband signal modulated by an analog carrier frequency (see fig.11 element 109).

It would have been obvious to one of ordinary skill in the art to implement the teaching of have been obvious to one of ordinary skill in the art to implement the teaching of Pikkarainen into Johnson as so that the modulation could be performed directly to the first IF frequency of the transmitter using and RF modulator as taught by Pikkarainen (see col.8, lines 60-63).

As per claim 29, Johnson et al teaches all the features of the claimed invention except wherein the information, when accessed, results in the machine performing: filtering the non-rejected sideband signal to provide a filtered sideband signal; (combining) the filtered sideband signal with a synthesized carrier signal to provide a communications signal.

Pikkarainen et al teaches filtering the non-rejected sideband signal to provide a filtered sideband signal (see fig.11 output element 109); mixer is the same as the claimed (combining) (see fig.11 element 108) the filtered sideband signal with a synthesized carrier signal to provide a communications signal.

It would have been obvious to one of ordinary skill in the art to implement the teaching of have been obvious to one of ordinary skill in the art to implement the teaching of Pikkarainen into Johnson as so that the modulation could be performed directly to the first IF frequency of the transmitter using and RF modulator as taught by Pikkarainen (see col.8, lines 60-63).

***Conclusion***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.
9. Doetsch et al U.S. Pub No 2002/0013131 A1 teaches a frequency-stabilized.
10. Linder et al U.S. Patent No 6,693,980 B1 teaches a wideband fast-hopping receiver.
11. Mollenkopf et al U.S. Pub no 2003/0227896 A1 teaches multi-standard transmitter system.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Emmanuel Bayard whose telephone number is 571 272 3016. The examiner can normally be reached on Monday-Friday (7:Am-4:30PM) Alternate Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on 571 272 3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

5/9/2008

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12.